

IN THE CLAIMS

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1.(Currently Amended) An electrophoretic display panel for displaying a picture and a subsequent picture comprising:

a first substrate and a second substrate opposed to the first substrate;

an electrophoretic medium between the first substrate and the second substrate;

a plurality of pixels;

a first electrode and a second electrode associated with each pixel for receiving a potential difference; and

a driver;

the electrophoretic medium being able to provide each pixel with an appearance, being one of a first extreme appearance, a second extreme appearance and intermediate appearances between the first extreme appearance and the second extreme appearance, and

the driver being able to control for each pixel the potential difference:

to a picture value that provides the pixel with a respective picture appearance being one of the appearances in dependence of the picture to be displayed, subsequently

to an inter-picture value that provides the pixel with a respective inter-picture appearance, and subsequently

to a subsequent picture value that provides the pixel with a respective subsequent picture appearance being one of the appearances in dependence of the subsequent picture to be displayed, wherein

the driver is able to control for each pixel an estimate potential difference as the inter-picture value that provides the pixels with a respective estimate picture appearance as the inter-picture appearance, and

wherein, for changing an initial pixel appearance to a final pixel appearance, the driver provides:

an initial pulse having an initial duration, an initial value and an initial sign for changing the initial pixel appearance to a substantially extreme appearance being substantially equal to one of the extreme appearances associated with the final picture appearance,

a plurality of pulses alternating in sign and having the initial value, wherein a first pulse of the plurality of pulses has a same sign as the initial sign, and a last pulse of the plurality of pulses has a final sign which is opposite the initial sign, each pulse of the plurality of pulses having a pulse duration which is less ~~then~~ than the ~~first~~ initial duration,

and

a final pulse having the final sign and a final duration larger than the pulse duration.

Claim 2 (Canceled)

3.(Previously Presented) The display panel of claim 1, wherein the estimate picture appearance of each pixel is substantially equal to:

the first extreme appearance if the respective subsequent picture appearance is optically closer to the first extreme appearance than to the second extreme appearance, and

the second extreme appearance otherwise.

Claims 4-5 (Canceled)

6.(Currently Amended) A method of driving an electrophoretic display panel, comprising the acts of:

receiving first picture values of a first picture and second picture values of a subsequent picture,

determining inter-picture values based on at least the second picture values, and

applying a sequence of potential differences across electrodes of pixels of the electrophoretic display, the sequence including:

potential differences corresponding to the first picture values,
potential differences corresponding to the inter-picture values, and
potential differences corresponding to the second picture values,

wherein, for changing an initial pixel appearance to a final pixel appearance, the method comprises the acts of:

providing an initial pulse having an initial duration, an initial value and an initial sign for changing the initial pixel appearance to a substantially extreme appearance being substantially equal to one of the extreme appearances associated with the final picture appearance,

providing a plurality of pulses alternating in sign and having the initial value, wherein a first pulse of the plurality of pulses has a same sign as the initial sign, and a last pulse of the plurality of pulses has a final sign which is opposite the initial sign, each pulse of the plurality of pulses having a pulse duration which is less than the first-initial duration, and

providing a final pulse having the final sign and a final duration larger than the pulse duration.

Claim 7 (Canceled)

8.(Previously Presented) The method of claim 6, wherein the set of extreme image values includes black and white.

9.(Previously Presented) The method of claim 6, wherein determining each inter-picture value includes selecting the extreme image value that is closest in value to a corresponding second picture value.

Claims 10-12 (Canceled)

13.(Currently Amended) A display device, comprising:

a controller that is configured to:

receive first picture values of a first picture and second picture values of a subsequent picture, and

determine inter-picture values based on at least the second picture values,
and

a driver that is configured to apply a sequence of potential differences across electrodes of pixels of an electrophoretic display, the sequence including:

potential differences corresponding to the first picture values,

potential differences corresponding to the inter-picture values, and

potential differences corresponding to the second picture values,
wherein, for changing an initial pixel appearance to a final pixel appearance, the controller is further configured to provide:

an initial pulse having an initial duration, an initial value and an initial sign for changing the initial pixel appearance to a substantially extreme appearance being substantially equal to one of the extreme appearances associated with the final picture appearance,

a plurality of pulses alternating in sign and having the initial value, wherein a first pulse of the plurality of pulses has a same sign as the initial sign, and a last pulse of the plurality of pulses has a final sign which is opposite the initial sign, each pulse of the plurality of pulses having a pulse duration which is less ~~then~~ than the ~~first~~ initial duration, and

a final pulse having the final sign and a final duration larger than the pulse duration.

Claim 14 (Canceled)

15.(Previously Presented) The display device of claim 13, wherein the set of extreme image values includes black and white.

16.(Previously Presented) The display device of claim 13, wherein the controller is

configured to select the extreme image value that is closest in value to a second picture value corresponding to each inter-picture value.

Claims 17-19 (Canceled)

20.(Previously Presented) The electrophoretic display panel of claim 1, wherein the pulse duration is at least a factor of two smaller than the final duration.

21.(Previously Presented) The electrophoretic display panel of claim 1, wherein the pulse duration is substantially 20 ms and the final duration is substantially 80 ms.

22.(Previously Presented) The electrophoretic display panel of claim 3, wherein a most significant bit of a subsequent picture information associated with the subsequent picture appearance is used to determine which extreme appearance is optically closer to the estimate picture appearance.

23.(Currently Amended) An electrophoretic display panel for displaying a picture and a subsequent picture comprising:

a first substrate, and a second substrate opposed to the first substrate;

an electrophoretic medium between the first and second substrates;

a plurality of pixels;

a first and a second electrode associated with each pixel of the plurality of pixels for receiving a potential difference; and

driver means for controlling the potential difference between the electrodes for each pixel of the plurality of pixels;

and wherein,

the electrophoretic medium provides each pixel of the plurality of pixels with an appearance, being one of a first and a second extreme appearance and intermediate appearances between the first and the second extreme appearance, and

the driver means controls, for each pixel of the plurality of pixels, the potential difference to provide:

- a picture value to provide the pixels with a respective picture appearance being one of the appearances depending on the picture to be displayed, subsequently,
- one or more inter-picture values to provide the pixels with one or more respective inter-picture appearances, and subsequently
- a subsequent picture value to provide the pixels with a respective subsequent picture appearance being one of the appearances depending on the subsequent picture to be displayed,

the driver means reduces the visibility of the one or more respective inter-picture appearances, and the driver means controls for each pixel of the plurality of pixels an

estimate potential difference as inter-picture value so that a respective inter-picture appearance is an estimate of the respective subsequent picture appearance,

wherein, for changing an initial pixel appearance to a final pixel appearance, the driver means provides:

an initial pulse having an initial duration, an initial value and an initial sign for changing the initial pixel appearance to a substantially extreme appearance being substantially equal to one of the extreme appearances associated with the final picture appearance,

a plurality of pulses alternating in sign and having the initial value, wherein a first pulse of the plurality of pulses has a same sign as the initial sign, and a last pulse of the plurality of pulses has a final sign which is opposite the initial sign, each pulse of the plurality of pulses having a pulse duration which is less than the initial duration, and a final pulse having the final sign and a final duration larger than the pulse duration.

24.(Previously Presented) A display panel as claimed in claim 23 wherein the estimate picture appearance of each pixel of the plurality of pixels is substantially equal to:
the first extreme appearance if the respective subsequent picture appearance is optically closer to the first extreme appearance than to the second extreme appearance,
and

the second extreme appearance if the respective subsequent picture appearance is

optically closer to the second extreme appearance than to the first extreme appearance.

25.(Previously Presented) A display panel as claimed in claim 24 wherein the drive means control, for each pixel of the plurality of pixels, the potential difference for displaying the subsequent picture with a sequence of preset values, the preset values in the sequence alternating in sign and having an absolute value in the order of the subsequent picture value, and the drive means applies each preset value in the sequence for a duration being at least a factor of two smaller than a largest duration of the durations during which the subsequent picture values will be applied, before having the subsequent picture value.

26.(Previously Presented) A display panel as claimed in claim 25 wherein the sequence of preset values has a last preset value with sign equal to the sign of the subsequent picture value.